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PATENT APPLICATION



In re Application of:

Examiner: Unassigned

Group Art Unit: 2161

August 2, 2002

August 2, 2002

## SUBMISSION OF PRIORITY DOCUMENT

In support of Applicant's claim for priority under 35 U.S.C. § 119, enclosed is a

PQ 7362, filed May 8, 2000.

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Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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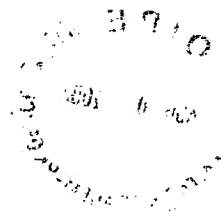
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I, LISA TREVERROW, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PQ 7362 for a patent by CANON KABUSHIKI KAISHA filed on 08 May 2000.

WITNESS my hand this  
Thirtieth day of April 2001

*Lisa Treverrow*

LISA TREVERROW  
TEAM LEADER EXAMINATION  
SUPPORT AND SALES



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**ORIGINAL**

**AUSTRALIA**

**Patents Act 1990**

**PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:**

Information Appliance Cost Subsidy

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Timothy Merrick Long

This invention is best described in the following statement:

**IP Australia**  
Documents received on:  
**08 MAY 2000**  
Batch No:   
**Sydney**

## INFORMATION APPLIANCE COST SUBSIDY

### Technical Field of the Invention

The present invention relates generally to home and personal information  
5 appliances and, in particular, to their application to advertising. The present invention  
relates to video information display advertising, and a corresponding video information  
display business system. The invention also relates to a computer program product  
including a computer readable medium having recorded thereon a computer program for  
implementing the business system described above.

10

### Background Art

The terms "Personal Data Assistant" (PDA) and "Home Information Appliance"  
(HIA) have, in recent times, become terms of increasingly common usage. A home  
information appliance is typically a device located in a domestic setting, providing  
15 household data processing and data storage functions. Examples of such functions  
include household calendars, reminders, household messages, rosters of chores, shopping  
lists, and World Wide Web queries relating to domestic issues. A personal data assistant  
is typically a mobile device owned by an individual, the device providing personal data  
processing and data storage functions. Examples of such functions include calendars,  
20 diaries, to-do lists, memos, and address books. In the present specification, the generic  
term "information appliance" has been used to denote a PDA, an HIA, or any other  
equivalent device with an information display.

A business model which is generally applied to both PDA and HIA devices is  
based upon a combination of revenue from (i) device sales, (ii) software upgrade sales,  
25 (iii) accessory sales, and (iv) on-line service subscription. This model, relating to items

(i) to (iii), is predicated on the assumption that pricing for both devices and software is set at a level which generates profit on a per-sale basis. In relation to item (iv), the model assumes that wants and needs of a consumer are best satisfied by on-line services. In the context of this business model, the only practical methods of reducing cost to a consumer  
5 are to reduce the cost of manufacture, which typically implies reducing capabilities and features which are offered, and/or reducing the cost of distribution, which typically impacts negatively on the convenience of purchasing.

Turning, in particular, to software products, advertising has in some instances been used to generate an additional source of revenue. For example, advertising space on  
10 virtual advertising billboards which feature in three-dimensional sports games can be sold to advertisers. Such advertising suffers the limitation, however, of featuring only sporadically in the course of the video games, and of being significantly influenced by the video game user's particular activity profile. Accordingly, this source of additional revenue from software products has been rendered uncertain because advertisers are  
15 unsure of the effective advertising value thereof.

### **Disclosure of the Invention**

It is an object of the present invention to substantially overcome, or at least ameliorate, one or more disadvantages of existing arrangements.

20 According to a first aspect of the invention, there is provided a video information display business system, comprising:

an information appliance having an advertising display area permanently disposed within a working display area, wherein displaying of advertising information in said advertising display area is not dependent upon a non-advertising application being  
25 run on the information appliance;

a software upgrade of said non-advertising application, said upgrade having an upgrade cost and being offered to an owner of the information appliance for an upgrade price, said software upgrade having space for said advertising information;

advertising space cost determination means adapted to determine an advertising  
5 space cost for an amount of said space to be offered to an advertiser;

upgrade price determination means adapted to determine said upgrade price dependent upon a difference between said advertising space cost and said upgrade cost; and

price adjusting means adapted to adjust said advertising space cost in order to  
10 decrease said upgrade price.

According to a second aspect of the invention, there is provided a video information display business system, comprising:

an information appliance having an advertising display area permanently disposed within a working display area, wherein displaying of advertising information in  
15 said advertising display area is not dependent upon a non-advertising application being run on the information appliance;

information appliance selling means for offering said information appliance to a consumer for a terminal price, said information appliance having a manufacturing cost;

space for advertising information disposed within the information appliance, said  
20 space being provided in the context of said non-advertising application;

advertising space selling means adapted to offer an amount of said space to an advertiser for an advertising space cost;

terminal price determination means adapted to determine said terminal price dependent upon a difference between said advertising space cost and said manufacturing  
25 cost; and

price adjusting means adapted to adjust said advertising space cost to decrease said terminal price.

According to another aspect of the invention there is provided a method of reducing a price of an information appliance, said method comprising the steps of:

5           determining a manufacturing cost of the information appliance, an advertising display area being permanently disposed within a working display area of the information appliance;

          selling a portion of the advertising display area to an advertiser for an advertising space cost;

10           determining a terminal price dependent upon a difference between said advertising space cost and said information appliance manufacturing cost; and  
          adjusting said advertising space cost to decrease said terminal price.

          According to another aspect of the invention there is provided a method of reducing a price of a software upgrade for an information appliance, an advertising  
15   display area being permanently disposed within a working display area of the appliance, said method comprising the steps of:

          selling a first use of the advertising display area to a first advertiser for a first advertising space cost, said first use being to display a first set of advertising material during a period commencing with a first use of the appliance by a user after purchase of  
20   the appliance, and terminating with a last use of the appliance by the user prior to installation of a software upgrade;

          determining a development cost of the software upgrade;

          selling a further use of the advertising display area to a further advertiser for a further advertising space cost, said further use being to display a further set of advertising  
25   material during a period commencing with a first use of the appliance by a user after

installation of the software upgrade, and terminating with a last use of the appliance by the user prior to installation of a further software upgrade;

determining a price of the software upgrade dependent upon a difference between at least one of (i) said first advertising space cost and said further advertising space cost, and (ii) said development cost; and

adjusting said further advertising space cost to decrease said price of the software upgrade.

According to another aspect of the invention there is provided a method of providing, at a reduced cost to a consumer, a device with a display capable of displaying images stored in digital form, said method comprising steps of:

providing digital storage space in said device for advertisements;

storing in said digital storage space advertisements paid for by at least one advertiser;

configuring the device to at least display said advertisements; and

providing said device to said consumer at a cost subsidised by said advertising payment.

According to another aspect of the invention there is provided a method of providing, at no cost to a consumer, software upgrades to a device with a display capable of displaying images stored in digital form, said method comprising steps of:

developing upgrade software which includes provision for advertising space;

selling said advertising space to at least one advertiser; and

providing, free of charge, said software upgrade to consumers, said free of charge provision being subsidised by said selling of advertising space.

According to another aspect of the invention there is provided a method of providing software upgrades to a device configured to display advertisements

independently of other functions of the device, said providing being at a reduced cost to a consumer, said method comprising steps of:

- producing upgrade software which includes provision for advertising space;
- selling said advertising space to at least one advertiser; and
- 5 providing said software upgrades to a consumer at cost subsidised by said advertising sales.

According to another aspect of the invention there is provided a method of providing a software upgrade to a device configured to display an advertisement at all times the device is operational, said providing being at a reduced cost to a consumer, said  
10 method comprising steps of:

- producing said upgrade software including provision for advertising space;
- selling said advertising space to at least one advertiser; and
- providing said software upgrade to a consumer at a cost subsidised by said advertising sale.

15 According to another aspect of the invention there is provided a computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to reduce a price of a software upgrade for an information appliance, said program comprising:

- 20 first determining code for determining a development cost of the software upgrade, an advertising display area being permanently disposed within a working display area of the information appliance;

selling code for selling a portion of the advertising display area to an advertiser for an advertising space cost;

second determining code for determining a price of the software upgrade dependent upon a difference between said advertising space cost and said development cost; and

adjusting code for adjusting said advertising space cost to decrease said price of  
5 the software upgrade.

According to another aspect of the invention there is provided a computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to reducing a price of an information appliance, said program  
10 comprising:

first determining code for determining a manufacturing cost of the information appliance, an advertising display area being permanently disposed within a working display area of the information appliance;

selling code for selling a portion of the advertising display area to an advertiser  
15 for an advertising space cost;

second determining code for determining a terminal price dependent upon a difference between said advertising space cost and said information appliance manufacturing cost; and

adjusting code for adjusting said advertising space cost to decrease said terminal  
20 price.

According to another aspect of the invention there is provided a computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to providing, at a reduced cost to a consumer, a device with a  
25 display capable of displaying images stored in digital form, said program comprising:



first providing code for providing digital storage space in said device for advertisements;

storing code for storing in said digital storage space advertisements paid for by at least one advertiser;

5            configuring code for configuring the device to at least display said advertisements; and

second providing code for providing said device to said consumer at a cost subsidised by said advertising payment.

According to another aspect of the invention there is provided a computer  
10    readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to provide, at no cost to a consumer, software upgrades to a device with a display capable of displaying images stored in digital form, said program comprising:

15            developing code for developing upgrade software which includes provision for advertising space;

selling code for selling said advertising space to at least one advertiser; and

providing code for providing, free of charge, said software upgrade to consumers, said free of charge provision being subsidised by said selling of advertising  
20    space.

According to another aspect of the invention there is provided a computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to provide software upgrades to a device configured to display

advertisements independently of other functions of the device, said providing being at a reduced cost to a consumer, said program comprising:

producing code for producing upgrade software which includes provision for advertising space;

- 5           selling code for selling said advertising space to at least one advertiser; and
- providing code for providing said software upgrades to a consumer at cost subsidised by said advertising sales.

          According to another aspect of the invention there is provided a computer readable medium having a program recorded thereon, said program comprising a plurality

10       of software modules adapted for interactive operation on at least one computer platform, said program adapted to provide a software upgrade to a device configured to display an advertisement at all times the device is operational, said providing being at a reduced cost to a consumer, said program comprising:

          producing code for producing said upgrade software including provision for

15       advertising space;

          selling code for selling said advertising space to at least one advertiser; and

          providing code for providing said software upgrade to a consumer at a cost subsidised by said advertising sale.

          According to another aspect of the invention there is provided a method of

20       determining a value of advertising space to an advertiser, said advertising space being part of an intended software upgrade for an information appliance which is one of a plurality of information appliances, said method comprising steps of:

          determining a consumer exposure to current advertising in said plurality of information appliances; and

ascribing a value to said intended software upgrade dependent upon said consumer exposure.

According to another aspect of the invention there is provided a computer readable medium having a program recorded thereon, said program comprising a plurality  
5 of software modules adapted for interactive operation on at least one computer platform, said program adapted to determine a value of advertising space to an advertiser, said advertising space being part of an intended software upgrade for an information appliance which is one of a plurality of information appliances, said program comprising:

determining code for determining a consumer exposure to current advertising in  
10 said plurality of information appliances; and

ascribing code for ascribing a value to said intended software upgrade dependent upon said consumer exposure.

According to another aspect of the invention there is provided a information appliance comprising:

15 a video display having a working display area;

a reserved advertising display area, permanently disposed within the working display area, said reserved display adapted to display, independently of a non-advertising application being run on the information appliance, advertising information;

input means adapted to accept a software upgrade for said non-advertising  
20 application, said software upgrade having space containing updated advertising information; and

display means adapted to display, independently of a non-advertising application being run on the information appliance, said updated advertising information when said information appliance is operating.

25

### **Brief Description of the Drawings**

A number of preferred embodiments of the present invention will now be described with reference to the drawings, in which:

Fig. 1 is a block diagram representation of an information appliance in accordance with a preferred embodiment of the present invention;

Fig. 2 depicts a permanent advertising display area reserved within a working display area of the terminal in Fig. 1;

Fig. 3 shows a block diagram representation of an information appliance in a second preferred embodiment;

Fig. 4 depicts an information appliance business system according to a preferred embodiment of the invention;

Fig. 5 shows a more abstract representation of the business system depicted in Fig. 4, emphasising the closely coupled interactive dependencies of system elements;

Fig. 6 shows a block diagram representation of a process for reducing a cost of an information appliance to a consumer;

Fig. 7 shows a block diagram representation of a process, according to the preferred embodiment, by which a price paid by a consumer for a software upgrade is minimised; and

Fig. 8 is a schematic block diagram of a general purpose computer upon which the preferred embodiment of the present invention can be practiced.

### **Detailed Description including Best Mode**

Where reference is made in any one or more of the accompanying drawings to steps and/or features, which have the same reference numerals, those steps and/or features

have for the purposes of this description the same function(s) or operation(s), unless the contrary intention appears.

In the context of this specification, the word “comprising” means “including principally but not necessarily solely” or “having” or “including” and not “consisting only of”. Variations of the word comprising, such as “comprise” and “comprises” have  
5 corresponding meanings..

Fig. 1 shows a first embodiment of an information appliance, having a display 106, which is often a touch-screen, a storage device 112 comprising a non-volatile memory 116 and a volatile memory 118, and a processing unit 104 which operates in  
10 accordance with software applications (not shown) typically residing in storage 112. The preferred embodiment is a self-contained information appliance capable of autonomous operation, however a variant which makes use of additional computing and storage resources located remotely is also described in relation to Fig. 3.

In the present figure, at least part of the non-volatile storage 116 is reserved for  
15 advertising material information, preferably stored in the form of digital images such as “GIF” or Joint Picture Experts Group (JPEG) formatted images. The display 106 is connected to the display processor 104 by a connection 102, the display processor 104 accessing the external environment using a communication channel 110. The display processor 104 is connected to the storage device 112 by a connection 108, the storage  
20 device 112 comprising the aforementioned non-volatile storage 116 for advertising material, and a memory store 118, possibly volatile, which stores program applications and other non-advertising related data. The information appliance, which can be either a PDA, a HIA or a similar device, also has a drive 120 for a removable medium, which is connected to the display processor 104, by a connection 122. The removable medium

referred to can be either a floppy disc, a compact disc, or any one of the other commonly available removable storage media.

Fig. 2 shows the display 106 in more detail, depicting a working display area 200, and an advertising display area 202 which is situated in an upper portion of the working display area 200. The advertising display area 202 is permanently reserved for display of advertising material, the information appliance being configured to continuously display stored advertisements in the display area 202 in a pre-programmed, or pseudo random sequence as long as the information appliance is operational. Accordingly, the advertisements being displayed in the advertisement display area 202 become a permanent feature of the display aspect of the information appliance, not being in any way affected by any particular application which a user may run on the information appliance.

The advertising space 202 thereby created, is available for sale to advertisers, the extent of exposure provided being a function of the manner in which advertising material is displayed. The cost of this advertising space 202 can be estimated using normal advertising industry standards and criteria such as market reach, and market targeting. Furthermore, statistical market surveys of actual consumer exposure to the advertisements presented on the information appliance can be used to calibrate advertising cost, and to influence future software and hardware design.

In a preferred embodiment, advertising is sold on the basis of synchronised time periods. At the end of each time period, information appliance users are provided, by mail, with a CD-ROM containing upgraded software applications and new advertisements for the next advertising time period. This CD-ROM is loaded into the information appliance by insertion into the removable medium drive 120 (see Fig. 1). The cost at which the CD-ROM is supplied to the user is a function of a balance between (i) a cost of

producing the upgraded software by the software developer, (ii) a profit margin required in this regard, and (iii) revenues achievable through sale of advertising space as previously described.

Other methods of delivering the software are possible, including direct electronic  
5 delivery over a communications network connected to the information appliance by the external communication channel 110 (see Fig. 1).

Fig. 3 shows a preferred embodiment of the information appliance based on a display console 300 which is situated in a convenient location in the domestic setting in question, and a remote PC 318 which provides additional processing power and data  
10 storage. The display console 300 comprises a display unit 306 connected to a display processor 304 by a connection 302. The connection 302 can, for example, be implemented using a Universal Serial Bus (USB) data connection running either over a cabled connection, or alternatively, over a wireless link using radio frequency modems. The display processor 304 is connected to a non-volatile advertising storage device 310  
15 by a connection 308. The display processor 304 is connected to the remote PC 318 by a connection 316. In this embodiment, the display console 300 can provide a large display with a reduced footprint. Since additional storage and processing requirements are relegated to the remote PC 318, additional flexibility is provided in supplying various desired physical configurations of the display console 300 to the market.

20 Fig. 4 shows a block representation of a video information display business system which embodies a business model balancing advertising revenues and a cost of both the information appliance device and its upgrade software. In the figure, an information appliance manufacturer 410 provides, possibly in conjunction with other information appliance manufacturers (not shown), a multitude of information appliances  
25 420. A particular information appliance 400 is considered in the following description.

Each information appliance 400 has an associated cost, depicted by a dashed arrow 428, to the manufacturer 410. The information appliance manufacturer also makes a profit, as depicted by the re-entrant dashed arrow 436. The information appliance 400 is supplied with a software application 444 (the provision thereof being depicted by an arrow 440) to run the information appliance 400. An advertiser 414, one of many advertisers 422 in the market, pays the information appliance manufacturer 410 (the payment depicted by a dashed arrow 424) in exchange for advertising space in the initial software 444 of the information appliance 400 sold to a consumer (not shown). The supply of advertising material 442 (in accordance with advertising space purchased) to the information appliance manufacturer, and the incorporation thereof into the information appliance, is shown by the composite arrow segment 412-402.

The arrow segments 412, 402 thus represent delivery of the advertising 442 material by the advertiser 414 to the information appliance 400 via the manufacturer 410. The information appliance manufacturer 410, having loaded the advertising material 442 from the advertiser 414 as depicted by the arrow segment 412, supplies the information appliance 400 to the consumer as depicted by an arrow 406. The information appliance owner pays the information appliance manufacturer 410, the payment being depicted by a dashed arrow 426, for the purchase of the information appliance 400. Clearly the cost (ie. 426) of the information appliance 400 to the consumer can be offset by the revenue 424 received by the manufacturer 410 from the advertiser 414 in respect of advertising material 442 loaded onto the information appliance 400. This counter balancing effect between the manufacturing cost 428 of the information appliance 400, and the revenue 424 from the advertiser 414 in respect of the advertising material 442 included in the sale of the information appliance 400, can significantly reduce the purchase price 426 of the



information appliance, while maintaining a desired level of profit 436 for the manufacturer 410.

The previous description is directed towards one aspect of the business system, namely the initial sale of the information appliance 400 by the manufacturer 410 to the  
5 consumer. This aspect incorporates countervailing forces between the information appliance manufacturing cost 428, the desired profit 436 from information appliance manufacture, the advertising revenue 424 associated with the initial advertising 442, and the information appliance price 426 to the consumer.

Another aspect of the information appliance business system is shown in the  
10 lower half of Fig. 4. In this aspect, a software developer 418 provides an upgrade software package 446, the developer 418 incurring a development cost depicted by a dashed arrow 432. The desired profit level is depicted by a dashed arrow 438. The advertiser 414 incorporates new advertisements 448 into the software upgrade package 446 by purchasing advertising space in the context of the upgrade software.

15 The software developer 418 supplies the software upgrade 446 as depicted by an arrow 404, to the information appliance 400, or rather to the owner thereof (not shown). The advertiser 414 has concurrently provided updated advertisements 448 to the information appliance as depicted by arrow segments 416, 408. Revenues 430 are received by the software developer 418 from the advertiser 414 in respect of the sale by  
20 the software developer 418 to the advertiser 414 of advertising space in the context of the software upgrades 446. These revenues 430 offset the cost 432 of developing the upgraded information appliance application 446, thereby allowing the software developer 418 to provide the upgrades 446, as depicted by an arrow 404, at a reduced cost 434 to the consumer.

Clearly the counter balancing forces between the advertising revenue 430, the desired profit level 438, and the cost of the software upgrade development 432 represents an intimately coupled business relationship between the information appliance owner, the advertiser 414, and the software developer 418. Particularly given the convergence of information and telecommunication technologies, the process loops between information appliance 400, advertiser 414, and software developer 418 can become extremely mechanised. The advertising information 448 can flow from the advertiser 414 to the software developer 418 electronically, and the corresponding revenue 430 can similarly be transmitted electronically. Similar comments applying to provision of software 446 to the information appliance owner, and to resultant payment 434 therefore.

Fig. 5 shows a more abstract representation of the business system depicted in Fig. 4, emphasising the closely coupled interactive dependencies of the system. The figure shows a consumer "C", a information appliance manufacturer "M", an advertiser "A", and a software developer "SW". Associated with the manufacturer M and the software developer SW, are associated financial entity abstractions thereof, namely "M<sup>\$</sup>", and "SW<sup>\$</sup>" respectively.

The manufacturer M manufactures a information appliance at an outgoing cost depicted by a dashed arrow "cm", a desired profit level being designated by a re-entrant dashed arrow "pm". The manufacturer M sells the information appliance to the consumer C, the transfer of the information appliance being represented by the arrow "term". In consideration thereof, the consumer C pays an amount to the manufacturer M, the payment being depicted by a dashed arrow "pterm". The manufacturer M sells advertising space to the advertiser A, the advertiser providing the manufacturer with a first batch of advertising material depicted by an arrow "a1". The advertiser A pays the manufacturer M for this advertising space, this payment being depicted by a dashed arrow

“cal”. The manufacturer M provides, with the information appliance, an application which runs on the information appliance, the provision of the application being depicted by an arrow “app”. Furthermore, the manufacturer M incorporates the first set of advertising material a1 into the information appliance, this incorporation being depicted  
5 by the arrows a1, and “ a1’ ”.

The aforementioned description is directed towards the system interaction for the upper part of the figure, ie the interactions relating to the manufacture and sale of the information appliance, and the various payments and incorporation of advertising material therein. The dynamics of this aspect of the business system can be clearly seen by  
10 considering the financial entity abstraction  $M^s$  under a condition of financial equilibrium. In this situation, the various dashed arrows which enter and exit the circle  $M^s$  can be represented by the following mathematical equation:

$$p_{term} = ca1 - cm - pm \quad [1]$$

15

where the various terms in the equation have the meanings provided in the aforementioned description. Assuming that the manufacturing cost cm and the desired profit level pm are fixed, the manufacturer M attempts to maximise the advertising revenue ca1, which has the effect of minimising the terminal cost pterm to the consumer

20 C.

Turning back to the figure, this time focussing on the lower half of the diagram, the software developer SW develops a software upgrade at a cost, and an associated desired profit level, depicted by dashed arrows “csw” and “psw” respectively. The software developer SW provides the upgrade software to the consumer C as depicted by  
25 an arrow “ug”. The consumer C in the most general case pays an upgrade price for this

5           The dynamics of this aspect of the business model can be understood by considering the financial entity abstraction “SW<sup>\$</sup>”. When considered in equilibrium, and having particular regard to the various dashed arrows entering and exiting SW<sup>\$</sup>, the system interaction can be described mathematically by the following equation:

10

15 In the context of software development and upgrades, it is possible to increase the  
advertising space cost  $ca_2$  to the point where the upgrade cost to the consumer  $C$  is zero.

20

25

determined by the information appliance manufacturer. In a following step 604, the manufacturer determines the maximum revenues  $ca1$  obtainable from sale of advertising space to a plurality of advertisers. The process 622 then iterates, as shown by an arrow 600 and a dashed arrow 618 (the latter depicting the “hidden” advertisers alluded to in the cascade of rectangles 604, 620), the feedback loop between the steps 602 and 604 depicting a negotiating process between the manufacturer and the plurality of advertisers.

Once the negotiation process has concluded, a following step 608 tests whether the maximised advertising revenue  $ca1$  exceeds the sum of the manufacturing cost  $cm$  and the profit level desired  $pm$ . In the event that the advertising revenue does, in fact, exceed these costs, then a step 616 indicates that the terminal cost  $p_{term}$  to the consumer is zero, indicating that the consumer receives the information appliance at no charge, since all costs have been fully subsidised by advertising revenues. Alternately, if the advertising revenues are insufficient to fully subsidise the cost of the information appliance, then a step 614 shows that the terminal cost  $p_{term}$  to the consumer is equal to a difference between the advertising revenue  $ca1$ , and a sum of the manufacturing cost  $cm$  and desired profit level  $pm$ .

Fig. 7 shows a block diagram representation 722 by which a price paid by a consumer for a software upgrade is minimised according to the preferred embodiment. In an initial step 702, a software developer determines a development cost  $csw$  for a software upgrade, and a desired profit level  $psw$  associated therewith. Thereafter, in a step 704, the software developer negotiates with a number of advertisers 704, ..., 720 in order to maximise advertising revenue  $ca2$  which can be derived from a sale of advertising space sold in the context of the new software upgrade. This negotiation process is iterative, as depicted by the arrow 700 and the dashed arrow 718.

After the negotiation process concludes, the process 722 is directed to a testing step 708, where the now maximised advertising revenue  $ca2$  is tested against an aggregate of the software development cost  $csw$  and the desired profit level  $psw$ . In the event that the advertising revenue  $ca2$  exceeds these costs values, then the process 722 is directed to a step 716 which indicates that the price “pupgrade” of the software upgrade is zero. This means that the consumer receives the software upgrade free of charge, all costs having been subsidised by advertising revenue associated with sale of advertising space in the software upgrade. Alternatively, if the advertising revenues are insufficient to cover all costs, the process 722 is directed in accordance with an arrow 706 to a step 714, which shows that a cost “pupgrade” paid by the consumer for the software upgrade is equal to a difference between the advertising revenue  $ca2$  and the aggregate of software development cost  $csw$  and desired profit level  $psw$ .

Figs. 4 and 5 illustrates the close interactive coupling between the information appliance manufacturer, the consumer, the advertiser, and the software developer. This is emphasised in the system abstraction provided in Fig. 5. With the convergence of communications and computers, as previously noted, Fig. 5 can be implemented by manual, or automatic procedures, in which computer based processing performs, or assists with the performance of some, or all of the processes described in relation to Figs. 6 and 7.

Regard is now had to one processing node of such an automated system. The node can either be a freestanding processing node in relation to Fig. 5, where all other processes are performed manually, or alternatively, can be one of many processing nodes in a more automated version of the system in Fig. 5. The method of counter balancing information appliance manufacture and/or software development costs against advertising revenue in a closed loop system can be practiced using a conventional general-purpose

computer system 800, such as that shown in Fig. 8, for the aforementioned processing nodes, or alternatively, using a display console 822 in conjunction with the "remote" PC 800, as has been described in relation to Fig. 3 for the nodes. The display console 822 and its connection 824 are depicted in dashed lines to distinguish them from the "free-standing" PC 800. In this figure, the processes of Figs. 6 and 7 may be implemented as software, such as an application program executing within the computer system 800. In particular, the steps of the method of counter balancing information appliance manufacture and/or software development costs against advertising revenue in a closed loop system are effected by instructions in the software that are carried out by the computer.

The software may be divided into two separate parts; one part for carrying out counter balancing information appliance manufacture and/or software development costs against advertising revenue in a closed loop system methods, and another part to manage the user interface between the latter and the user. The software may be stored in a computer readable medium, including the storage devices described below, for example. The software is loaded into the computer from the computer readable medium, and then executed by the computer. A computer readable medium having such software or computer program recorded on it is a computer program product. The use of the computer program product in the computer preferably effects an advantageous apparatus for counter balancing information appliance manufacture and/or software development costs against advertising revenue in a closed loop system in accordance with the embodiments of the invention.

The computer system 800 comprises a computer module 801, input devices such as a keyboard 802 and mouse 803, output devices including a printer 815, a display device 814 and/or, a remote console 822. A Modulator-Demodulator (Modem)

transceiver device 816 is used by the computer module 801 for communicating to and from a communications network 820, for example connectable via a telephone line 821 or other functional medium. The modem 816 can be used to obtain access to the Internet, and other network systems, such as a Local Area Network (LAN) or a Wide Area  
5 Network (WAN).

The computer module 801 typically includes at least one processor unit 805, a memory unit 806, for example formed from semiconductor random access memory (RAM) and read only memory (ROM), input/output (I/O) interfaces including a video interface 807, and an I/O interface 813 for the keyboard 802, mouse 803 and remote  
10 console 822, and optionally a joystick (not illustrated), and an interface 808 for the modem 816. A storage device 809 is provided and typically includes a hard disk drive 810 and a floppy disk drive 811. A magnetic tape drive (not illustrated) may also be used. A CD-ROM drive 812 is typically provided as a non-volatile source of data. The components 805 to 813 of the computer module 801, typically communicate via an  
15 interconnected bus 804 and in a manner which results in a conventional mode of operation of the computer system 800 known to those in the relevant art. Examples of computers on which the embodiments can be practised include IBM-PC's and compatibles, Sun Sparcstations or alike computer systems evolved therefrom.

Typically, the application program of the preferred embodiment is resident on  
20 the hard disk drive 810 and read and controlled in its execution by the processor 805. Intermediate storage of the program and any data fetched from the network 820 may be accomplished using the semiconductor memory 806, possibly in concert with the hard disk drive 810. In some instances, the application program may be supplied to the user encoded on a CD-ROM or floppy disk and read via the corresponding drive 812 or 811,  
25 or alternatively may be read by the user from the network 820 via the modem device 816.



Still further, the software can also be loaded into the computer system 800 from other computer readable medium including magnetic tape, a ROM or integrated circuit, a magneto-optical disk, a radio or infra-red transmission channel between the computer module 801 and another device, a computer readable card such as a PCMCIA card, and  
5 the Internet and Intranets including email transmissions and information recorded on websites and the like. The foregoing is merely exemplary of relevant computer readable mediums. Other computer readable mediums may be practiced without departing from the scope and spirit of the invention.

10

### **Industrial Applicability**

It is apparent from the above that the embodiment(s) of the invention are applicable to the information appliance manufacturing, and information appliance software development industries.

The foregoing describes only one embodiment/some embodiments of the present  
15 invention, and modifications and/or changes can be made thereto without departing from the scope and spirit of the invention, the embodiment(s) being illustrative and not restrictive.

**The claims defining the invention are as follows:**

1. A video information display business system, comprising:
  - an information appliance having an advertising display area permanently
  - 5 disposed within a working display area, wherein displaying of advertising information in said advertising display area is not dependent upon a non-advertising application being run on the information appliance;
  - a software upgrade of said non-advertising application, said upgrade having an upgrade cost and being offered to an owner of the information appliance for an upgrade
  - 10 price, said software upgrade having space for said advertising information;
  - advertising space cost determination means adapted to determine an advertising space cost for an amount of said space to be offered to an advertiser;
  - upgrade price determination means adapted to determine said upgrade price dependent upon a difference between said advertising space cost and said upgrade cost;
  - 15 and
  - price adjusting means adapted to adjust said advertising space cost in order to decrease said upgrade price.
2. A video information display business system according to claim 1, wherein said
- 20 upgrade cost includes a profit.
3. A video information display business system according to claim 1, wherein said amount of said space is determined in accordance with at least one of (i) viewing time, and (ii) area within said reserved advertising display area.

4. A video information display business system, comprising:

an information appliance having an advertising display area permanently disposed within a working display area, wherein displaying of advertising information in said advertising display area is not dependent upon a non-advertising application being run on the information appliance;

information appliance selling means for offering said information appliance to a consumer for a terminal price, said information appliance having a manufacturing cost;

space for advertising information disposed within the information appliance, said space being provided in the context of said non-advertising application;

10 advertising space selling means adapted to offer an amount of said space to an advertiser for an advertising space cost;

terminal price determination means adapted to determine said terminal price dependent upon a difference between said advertising space cost and said manufacturing cost; and

15 price adjusting means adapted to adjust said advertising space cost to decrease said terminal price.

5. A video information display business system according to claim 4, wherein said manufacturing cost includes a profit.

20

6. A video information display business system according to claim 4, wherein said amount of said space is determined in accordance with at least one of (i) viewing time, and (ii) area within said reserved advertising display area.

7. A method of reducing a price of an information appliance, said method comprising the steps of:

determining a manufacturing cost of the information appliance, an advertising display area being permanently disposed within a working display area of the information  
5 appliance;

selling a portion of the advertising display area to an advertiser for an advertising space cost;

determining a terminal price dependent upon a difference between said advertising space cost and said information appliance manufacturing cost; and

10 adjusting said advertising space cost to decrease said terminal price.

8. A method of reducing a price of a software upgrade for an information appliance, an advertising display area being permanently disposed within a working display area of the appliance, said method comprising the steps of:

15 selling a first use of the advertising display area to a first advertiser for a first advertising space cost, said first use being to display a first set of advertising material during a period commencing with a first use of the appliance by a user after purchase of the appliance, and terminating with a last use of the appliance by the user prior to installation of a software upgrade;

20 determining a development cost of the software upgrade;

selling a further use of the advertising display area to a further advertiser for a further advertising space cost, said further use being to display a further set of advertising material during a period commencing with a first use of the appliance by a user after installation of the software upgrade, and terminating with a last use of the appliance by  
25 the user prior to installation of a further software upgrade;

determining a price of the software upgrade dependent upon a difference between at least one of (i) said first advertising space cost and said further advertising space cost, and (ii) said development cost; and

adjusting said further advertising space cost to decrease said price of the software  
5 upgrade.

9. A method of providing, at a reduced cost to a consumer, a device with a display capable of displaying images stored in digital form, said method comprising steps of:

providing digital storage space in said device for advertisements;  
10 storing in said digital storage space advertisements paid for by at least one advertiser;  
configuring the device to at least display said advertisements; and  
providing said device to said consumer at a cost subsidised by said advertising  
payment.

15

10. A method according to claim 9, whereby said device displays said advertisements independently of other functions of the device.

11. A method according to claim 9, whereby said device displays at least one of said  
20 advertisements at all time it is operational.

12. A method of providing, at no cost to a consumer, software upgrades to a device with a display capable of displaying images stored in digital form, said method comprising steps of:

25 developing upgrade software which includes provision for advertising space;

selling said advertising space to at least one advertiser; and  
providing, free of charge, said software upgrade to consumers, said free of  
charge provision being subsidised by said selling of advertising space.

5 13. A method according to claim 12, whereby said device displays said  
advertisements independently of other functions of the device.

14. A method according to claim 12, whereby said device displays at least one of  
said advertisements at all times it is operational.

10

15. A method of providing software upgrades to a device configured to display  
advertisements independently of other functions of the device, said providing being at a  
reduced cost to a consumer, said method comprising steps of:

producing upgrade software which includes provision for advertising space;  
15 selling said advertising space to at least one advertiser; and  
providing said software upgrades to a consumer at cost subsidised by said  
advertising sales.

16. A method of providing a software upgrade to a device configured to display an  
20 advertisement at all times the device is operational, said providing being at a reduced cost  
to a consumer, said method comprising steps of:

producing said upgrade software including provision for advertising space;  
selling said advertising space to at least one advertiser; and  
providing said software upgrade to a consumer at a cost subsidised by said  
25 advertising sale.

17. A computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to reduce a price of a software upgrade for  
5 an information appliance, said program comprising:

first determining code for determining a development cost of the software upgrade, an advertising display area being permanently disposed within a working display area of the information appliance;

selling code for selling a portion of the advertising display area to an advertiser  
10 for an advertising space cost;

second determining code for determining a price of the software upgrade dependent upon a difference between said advertising space cost and said development cost; and

adjusting code for adjusting said advertising space cost to decrease said price of  
15 the software upgrade.

18. A computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to reducing a price of an information  
20 appliance, said program comprising:

first determining code for determining a manufacturing cost of the information appliance, an advertising display area being permanently disposed within a working display area of the information appliance;

selling code for selling a portion of the advertising display area to an advertiser  
25 for an advertising space cost;

second determining code for determining a terminal price dependent upon a difference between said advertising space cost and said information appliance manufacturing cost; and

adjusting code for adjusting said advertising space cost to decrease said terminal  
5 price.

19. A computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to providing, at a reduced cost to a  
10 consumer, a device with a display capable of displaying images stored in digital form, said program comprising:

first providing code for providing digital storage space in said device for advertisements;

storing code for storing in said digital storage space advertisements paid for by  
15 at least one advertiser;

configuring code for configuring the device to at least display said advertisements; and

second providing code for providing said device to said consumer at a cost subsidised by said advertising payment.

20

20. A computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to provide, at no cost to a consumer, software upgrades to a device with a display capable of displaying images stored in  
25 digital form, said program comprising:



developing code for developing upgrade software which includes provision for advertising space;

selling code for selling said advertising space to at least one advertiser; and

providing code for providing, free of charge, said software upgrade to  
5 consumers, said free of charge provision being subsidised by said selling of advertising space.

21. A computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least  
10 one computer platform, said program adapted to provide software upgrades to a device configured to display advertisements independently of other functions of the device, said providing being at a reduced cost to a consumer, said program comprising:

producing code for producing upgrade software which includes provision for advertising space;

15 selling code for selling said advertising space to at least one advertiser; and

providing code for providing said software upgrades to a consumer at cost subsidised by said advertising sales.

22. A computer readable medium having a program recorded thereon, said program  
20 comprising a plurality of software modules adapted for interactive operation on at least one computer platform, said program adapted to provide a software upgrade to a device configured to display an advertisement at all times the device is operational, said providing being at a reduced cost to a consumer, said program comprising:

producing code for producing said upgrade software including provision for  
25 advertising space;

selling code for selling said advertising space to at least one advertiser; and  
providing code for providing said software upgrade to a consumer at a cost  
subsidised by said advertising sale.

- 5    23.    A method of determining a value of advertising space to an advertiser, said  
advertising space being part of an intended software upgrade for an information appliance  
which is one of a plurality of information appliances, said method comprising steps of:

determining a consumer exposure to current advertising in said plurality of  
information appliances; and

- 10        ascribing a value to said intended software upgrade dependent upon said  
consumer exposure.

24.    A computer readable medium having a program recorded thereon, said program  
comprising a plurality of software modules adapted for interactive operation on at least  
15    one computer platform, said program adapted to determine a value of advertising space to  
an advertiser, said advertising space being part of an intended software upgrade for an  
information appliance which is one of a plurality of information appliances, said program  
comprising:

- 20        determining code for determining a consumer exposure to current advertising in  
said plurality of information appliances; and

ascribing code for ascribing a value to said intended software upgrade dependent  
upon said consumer exposure.

25.    An information appliance comprising:  
25        a video display having a working display area;

a reserved advertising display area, permanently disposed within the working display area, said reserved display adapted to display, independently of a non-advertising application being run on the information appliance, advertising information;

input means adapted to accept a software upgrade for said non-advertising  
5 application, said software upgrade having space containing updated advertising information; and

display means adapted to display, independently of a non-advertising application being run on the information appliance, said updated advertising information when said information appliance is operating.

10

26. An information appliance substantially as described herein with reference to any one of the embodiments, as that embodiment is described in the accompanying drawings.

27. An information appliance business system substantially as described herein with  
15 reference to any one of the embodiments, as that embodiment is described in the accompanying drawings.

28. A method of reducing a price of a information appliance substantially as described herein with reference to any one of the embodiments, as that embodiment is  
20 described in the accompanying drawings.

29. A method of reducing a price of a software upgrade for a information appliance substantially as described herein with reference to any one of the embodiments, as that embodiment is described in the accompanying drawings.

25

30. A method of providing, at a reduced cost to a consumer, a device with a display capable of displaying images stored in digital form, substantially as described herein with reference to any one of the embodiments, as that embodiment is described in the accompanying drawings.

5

31. A method of providing, at no cost to a consumer, software upgrades to a device with a display capable of displaying images stored in digital form, substantially as described herein with reference to any one of the embodiments, as that embodiment is described in the accompanying drawings.

10

32. A method of providing software upgrades to a device configured to display advertisements substantially as described herein with reference to any one of the embodiments, as that embodiment is described in the accompanying drawings.

15 33. A computer readable medium having a program recorded thereon, said program comprising a plurality of software modules adapted for interactive operation on at least one computer platform, substantially as described herein with reference to any one of the embodiments, as that embodiment is described in the accompanying drawings.

20

DATED this Eighth Day of May 2000  
**Canon Kabushiki Kaisha**  
Patent Attorneys for the Applicant  
SPRUSON & FERGUSON

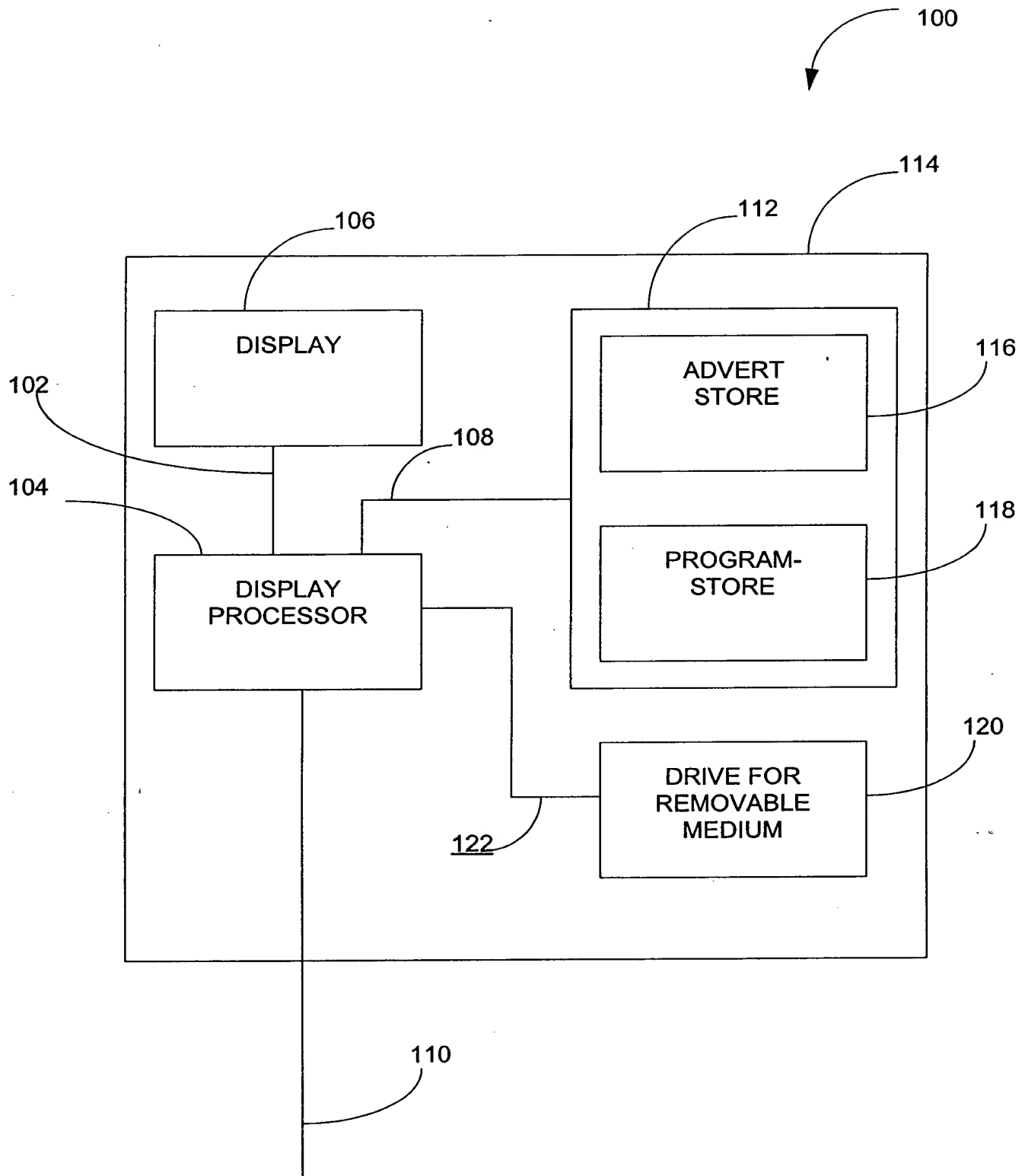


Fig. 1

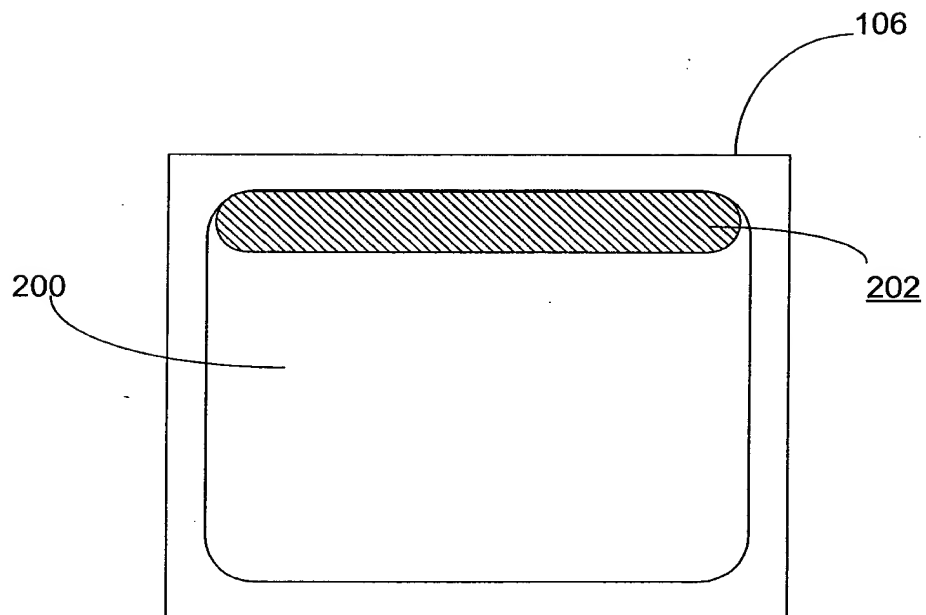


Fig. 2

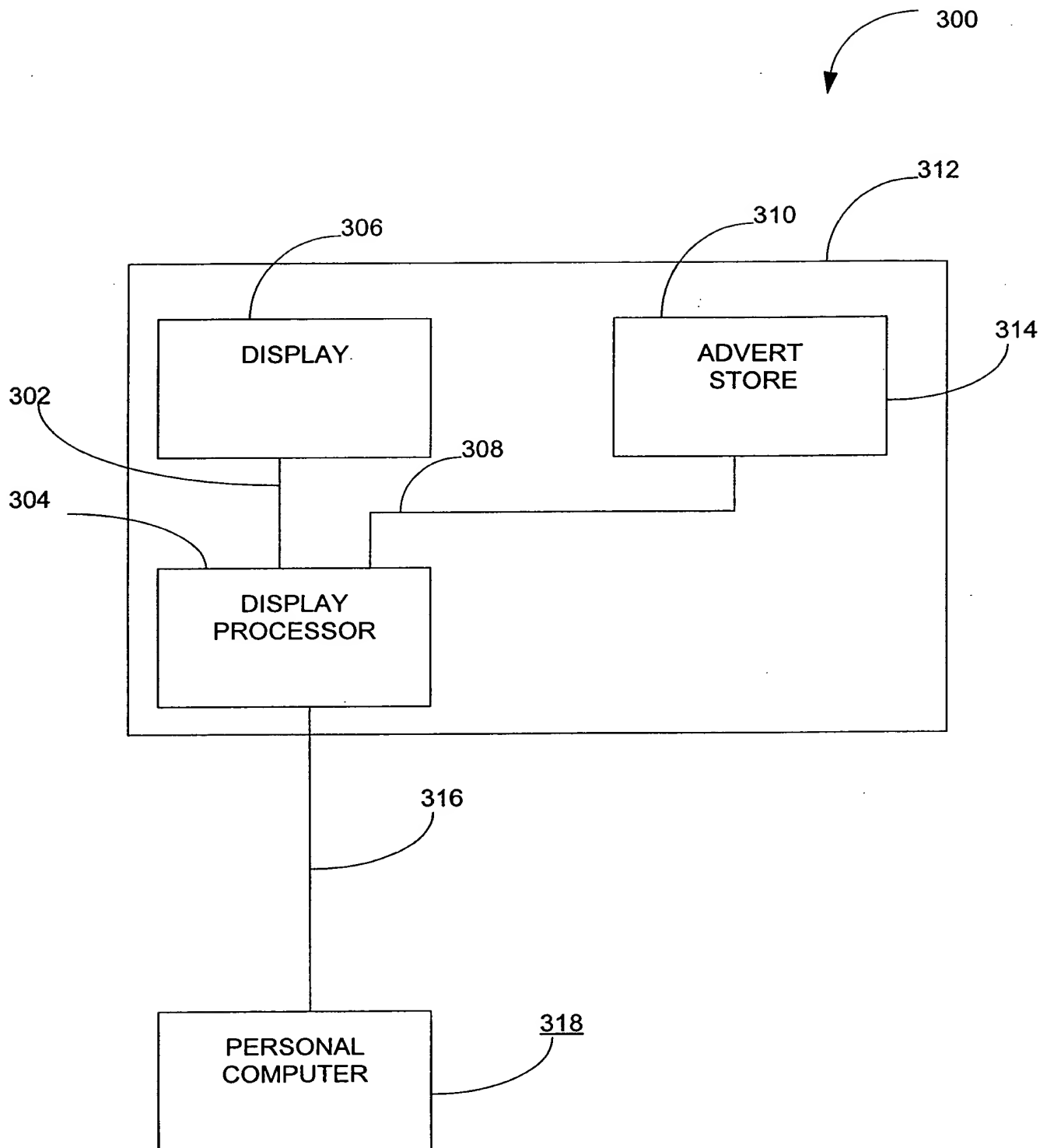


Fig. 3

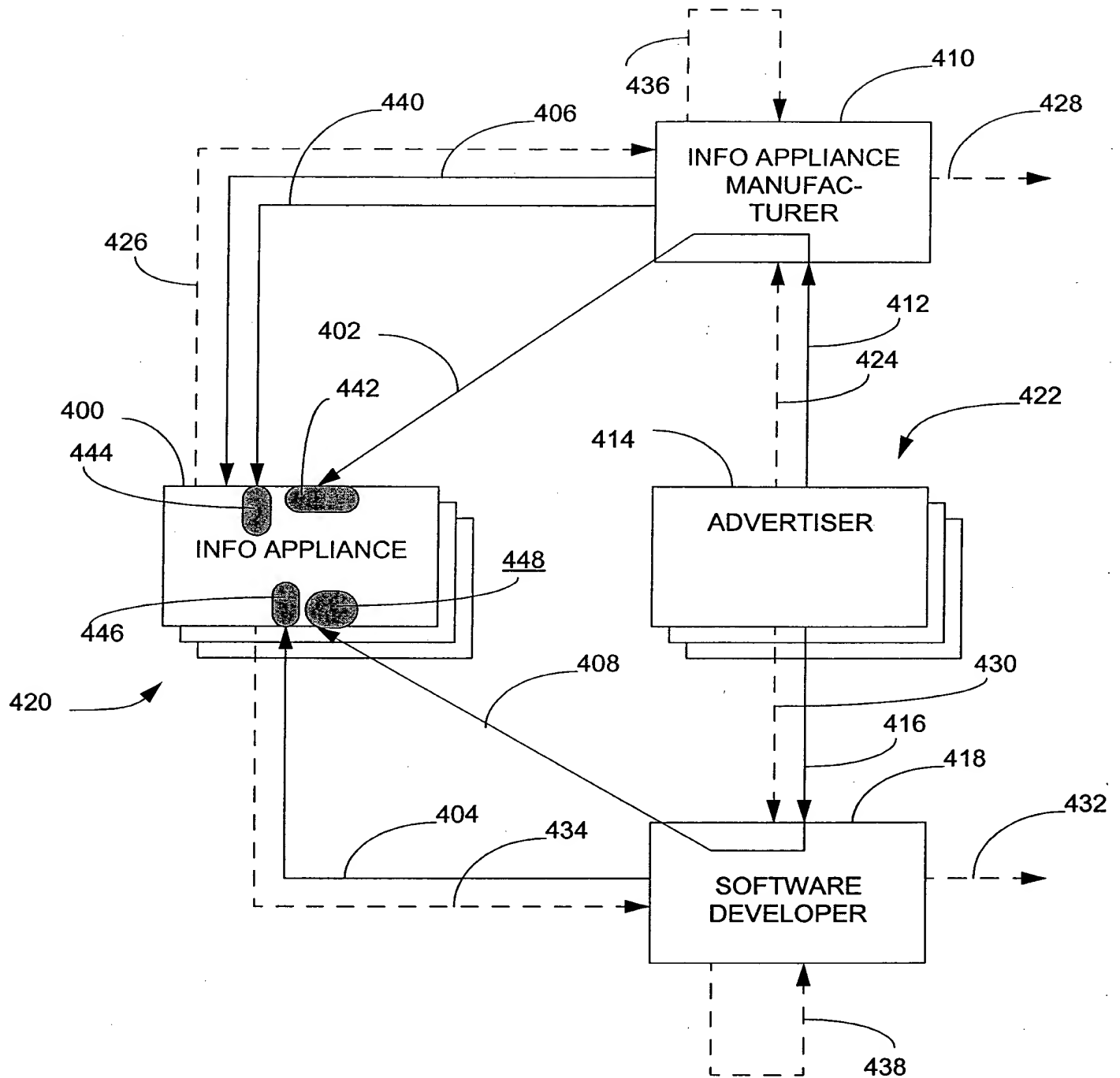


Fig. 4



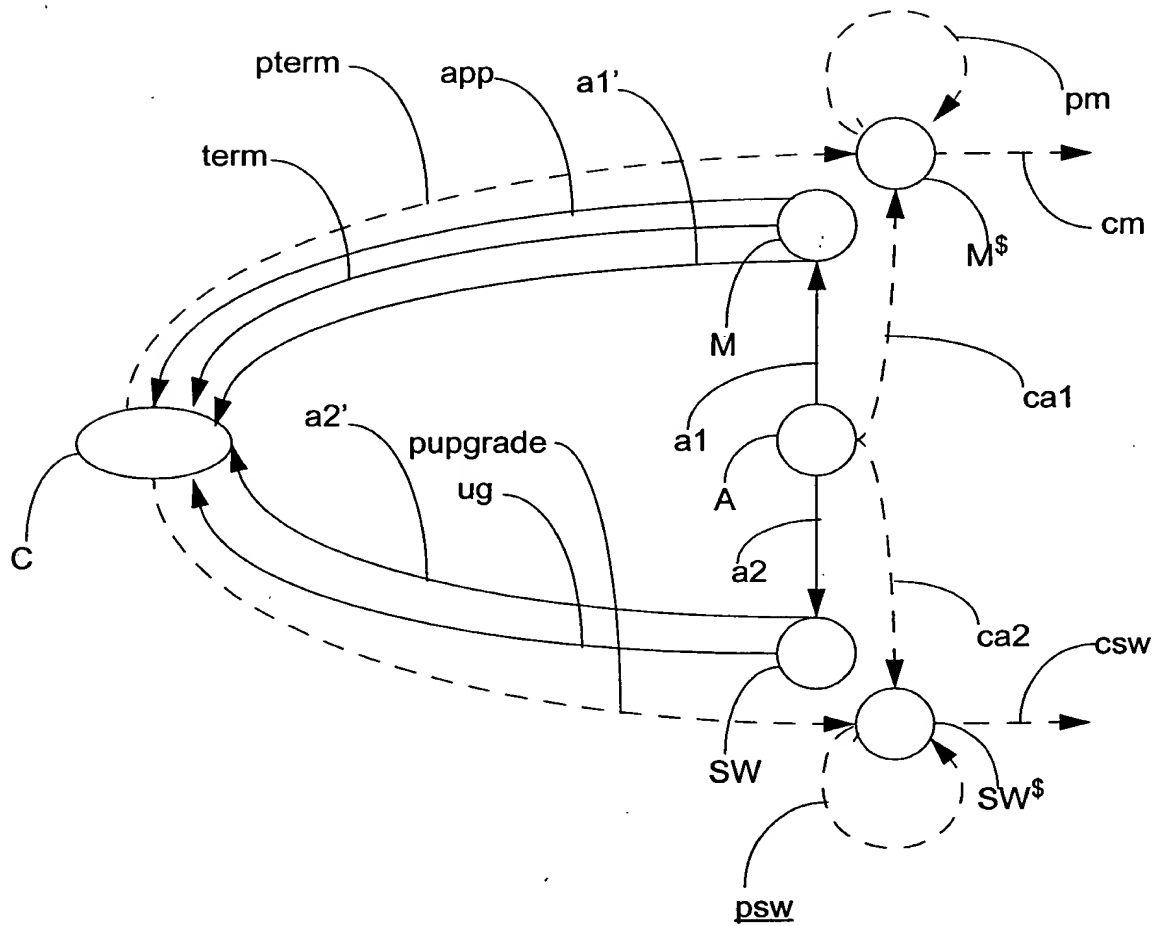


Fig. 5

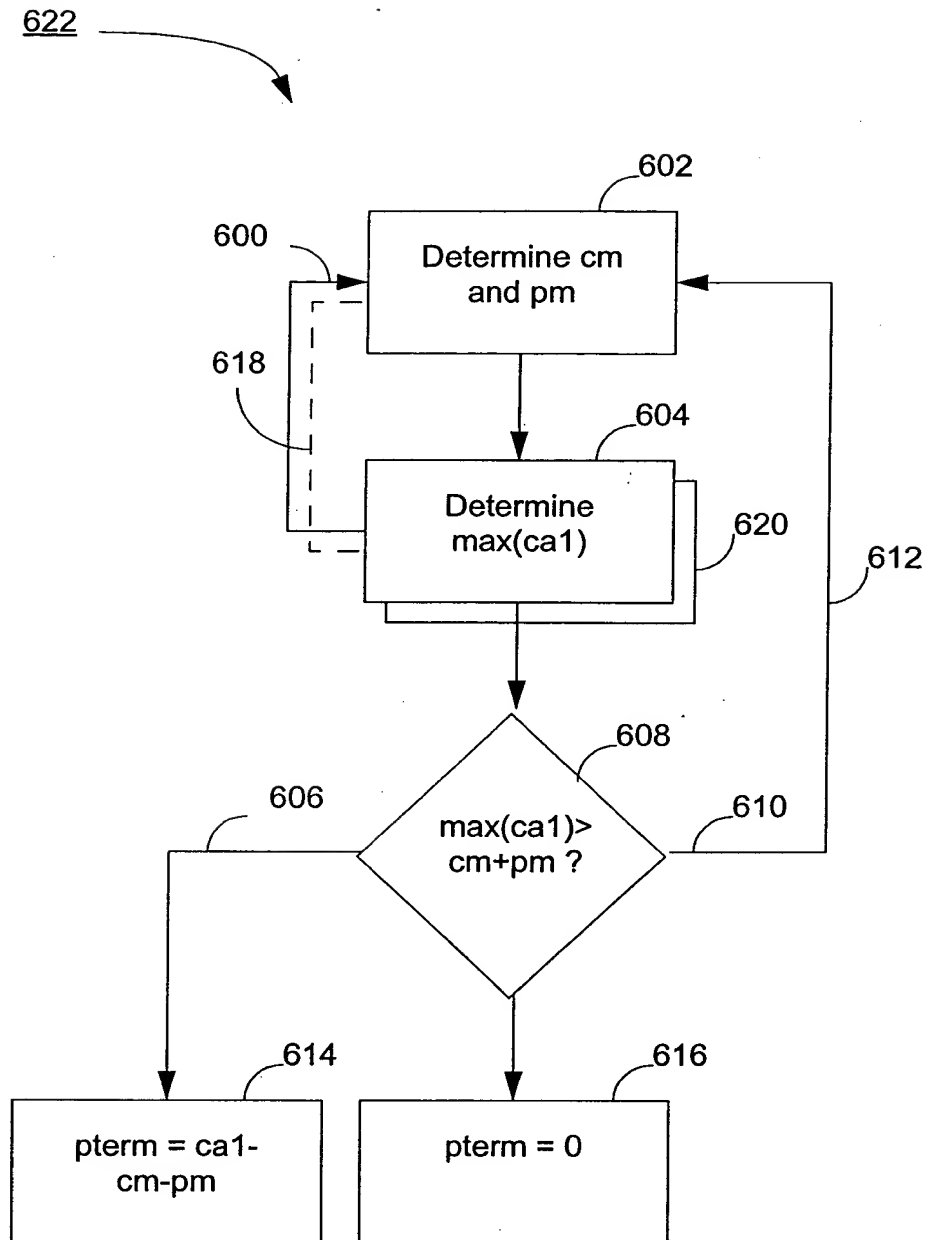


Fig. 6

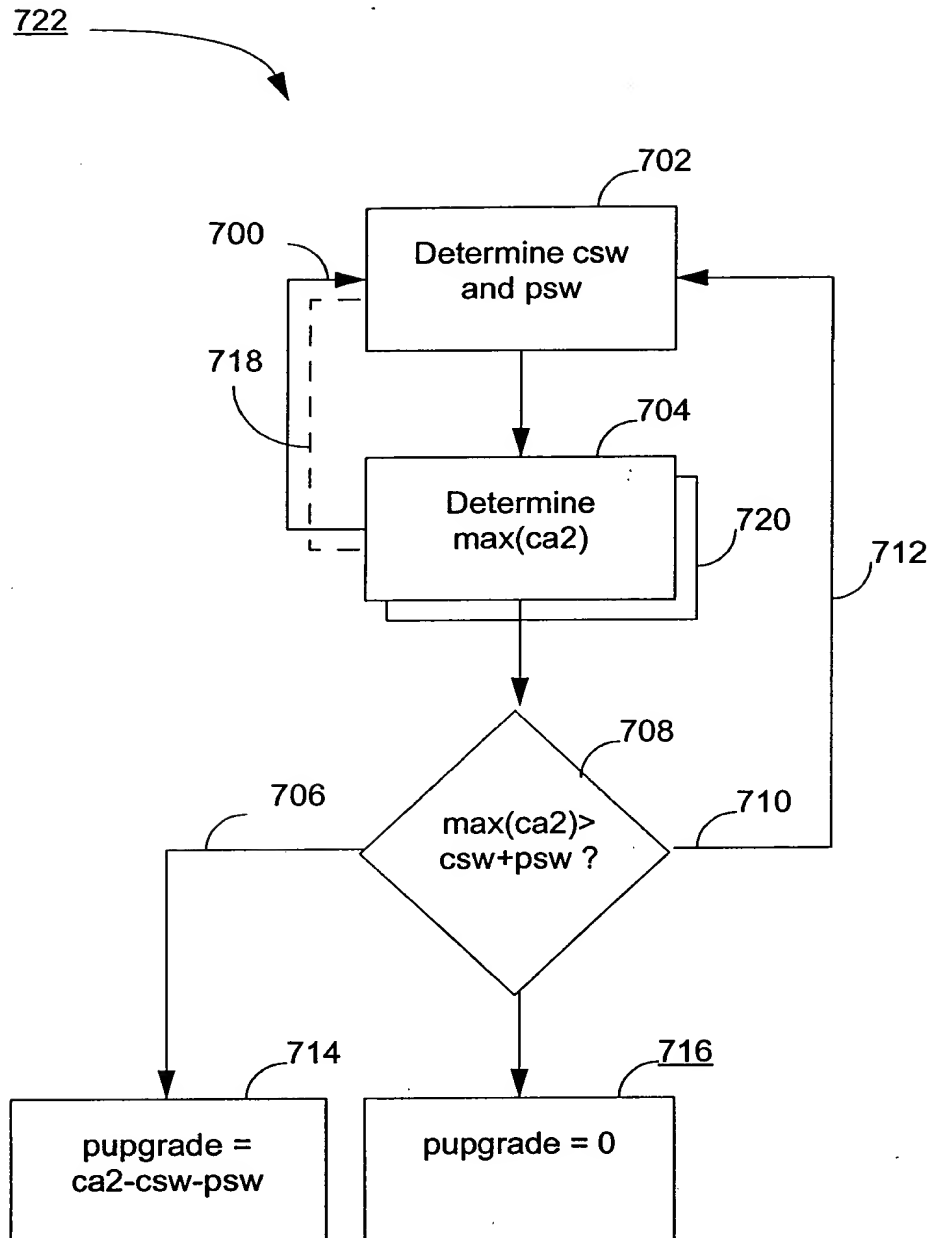
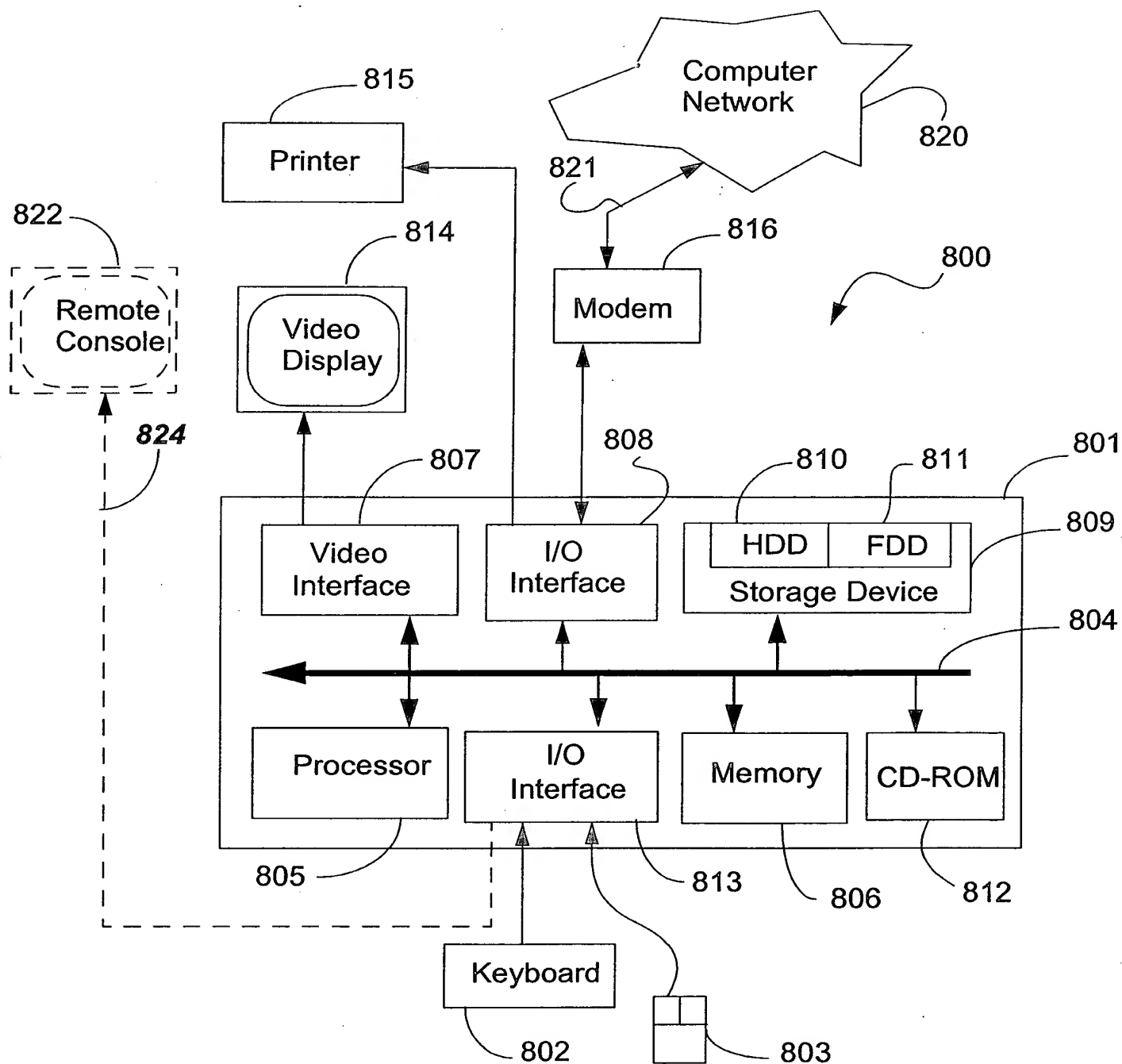


Fig. 7



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**Fig. 8**